

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents  
 United States Patent and Trademark  
 Office  
 Box PCT  
 Washington, D.C. 20231  
 ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

<b>Date of mailing</b> (day/month/year) 18 August 1999 (18.08.99)	
<b>International application No.</b> PCT/SE97/02067	<b>Applicant's or agent's file reference</b> 108735 UPH
<b>International filing date</b> (day/month/year) 10 December 1997 (10.12.97)	<b>Priority date</b> (day/month/year)
<b>Applicant</b> JOBSON, Edward et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

16 June 1999 (16.06.99)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<b>The International Bureau of WIPO</b> 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	<b>Authorized officer</b> F. Baechler Telephone No.: (41-22) 338.83.38
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## PATENT COOPERATION TREATY

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NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

ANDERSSON, Per  
Albihns Patentbyrå Göteborg AB  
Box 142  
S-401 22 Göteborg  
SUÈDE

Date of mailing (day/month/year) 20 October 1999 (20.10.99)	<b>IMPORTANT NOTIFICATION</b>
Applicant's or agent's file reference 108735 UPH	
International application No. PCT/SE97/02067	International filing date (day/month/year) 10 December 1997 (10.12.97)

1. The following indications appeared on record concerning:	
<input type="checkbox"/> the applicant	<input type="checkbox"/> the inventor <input checked="" type="checkbox"/> the agent <input type="checkbox"/> the common representative
Name and Address GRAUDUMS, Valdis Albihn West AB P.O. Box 142 S-401 22 Göteborg Sweden	State of Nationality
	State of Residence
	Telephone No. +46 31 600100
	Facsimile No. +46 31 711 95 55
Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:	
<input type="checkbox"/> the person	<input checked="" type="checkbox"/> the name <input checked="" type="checkbox"/> the address <input type="checkbox"/> the nationality <input type="checkbox"/> the residence
Name and Address ANDERSSON, Per Albihns Patentbyrå Göteborg AB Box 142 S-401 22 Göteborg Sweden	State of Nationality
	State of Residence
	Telephone No. 46 31 725 8100
	Facsimile No. 46 31 711 9555
Teleprinter No.	
3. Further observations, if necessary:	
4. A copy of this notification has been sent to:	
<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned
<input checked="" type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Philippe Bécamel
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

09/581333  
5000

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 10 APR 2000

WIPO

PCT

Applicant's or agent's file reference 108735/SBN	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/SE97/02067	International filing date (day/month/year) 10.12.1997	Priority date (day/month/year) ---
International Patent Classification (IPC) or national classification and IPC <sub>7</sub> B 01 D 53/94, F 01 N 3/28		
Applicant AB Volvo et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  16.06.1999	Date of completion of this report  23.03.2000
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88	Authorized officer  Marianne Bratsberg/ELY Telephone No. 08-782 25 00

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE97/02067

## I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

☒ the international application as originally filed.

☐ the description, pages \_\_\_\_\_, as originally filed,  
 pages \_\_\_\_\_, filed with the demand,  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

☐ the claims, Nos. \_\_\_\_\_, as originally filed,  
 Nos. \_\_\_\_\_, as amended under Article 19,  
 Nos. \_\_\_\_\_, filed with the demand,  
 Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
 Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

☐ the drawings, sheets/fig \_\_\_\_\_, as originally filed,  
 sheets/fig \_\_\_\_\_, filed with the demand  
 sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
 sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

2. The amendments have resulted in the cancellation of:

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/fig \_\_\_\_\_

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE97/02067

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Claims	<u>1-38</u>	YES
	Claims	_____	NO
Inventive step (IS)	Claims	<u>1-38</u>	YES
	Claims	_____	NO
Industrial applicability (IA)	Claims	<u>1-38</u>	YES
	Claims	_____	NO

### 2. Citations and explanations

The invention relates to a porous material for carrying a catalyst for oxidation of NO and a reducing agent (HC) in exhaust gases. The invention according to the independent claims 1 and 23 is characterised in that the oxidation catalyst is enclosed inside the porous structure. The catalyst has the ability to oxidise a reducing agent but this reducing agent is sterically hindered to make contact with the oxidation catalyst.

The closest prior art is to be found in US 3 901 821 which describes a catalyst made of a porous material. The inner circle of the cylindrically shaped catalyst is impregnated with a reduction catalyst meanwhile the outer, annular ring is covered with an oxidising catalyst. (See fig. 1-3; column 3, line 29 - column 5, line 38).

The invention according to claim 1 differs from US 3 901 821 in that the porous material is constructed to inhibit the entrance of unwanted substance (reducing agent) into the pores to make contact with the catalytic material. This technical feature can not be found in US 3 901 821 and is therefore new.

In the catalyst according to the invention the substances of the exhaust gas are directed to make contact with the desired catalyst depending on the molecular properties and the catalyst structure. In the arrangement described in US 3 901 821 the exhaust gas is forced by partition walls and valves to be guided to the right catalyst. The solution of the problem to direct the exhaust gases and their content to the wanted catalyst is completely different and therefore the invention according to claim 1 is regarded to involve an inventive step.

Hence, the invention according to claim 1-38 is novel, is regarded to involve an inventive step and to have industrial applicability.



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>6</sup> : B01D 53/94, F01N 3/28	A1	(11) International Publication Number: WO 99/29400 (43) International Publication Date: 17 June 1999 (17.06.99)
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(21) International Application Number: PCT/SE97/02067

(22) International Filing Date: 10 December 1997 (10.12.97)

(71) Applicant (for all designated States except US): AB VOLVO  
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(72) Inventors; and

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MARTENS, Johan, A. [BE/BE]; Borheidestraat 25, B-3040  
Huldenberg (BE). CAUVEL, Anne [FR/FR]; 8, rue de  
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[FR/FR]; Cerceville, F-16170 Genac (FR).(74) Agents: GRAUDUMS, Valdis et al.; Albihn West AB, P.O.  
Box 142, S-401 22 Göteborg (SE).(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR,  
BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE,  
GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX,  
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,  
TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent  
(GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent  
(AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent  
(AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU,  
MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM,  
GA, GN, ML, MR, NE, SN, TD, TG).

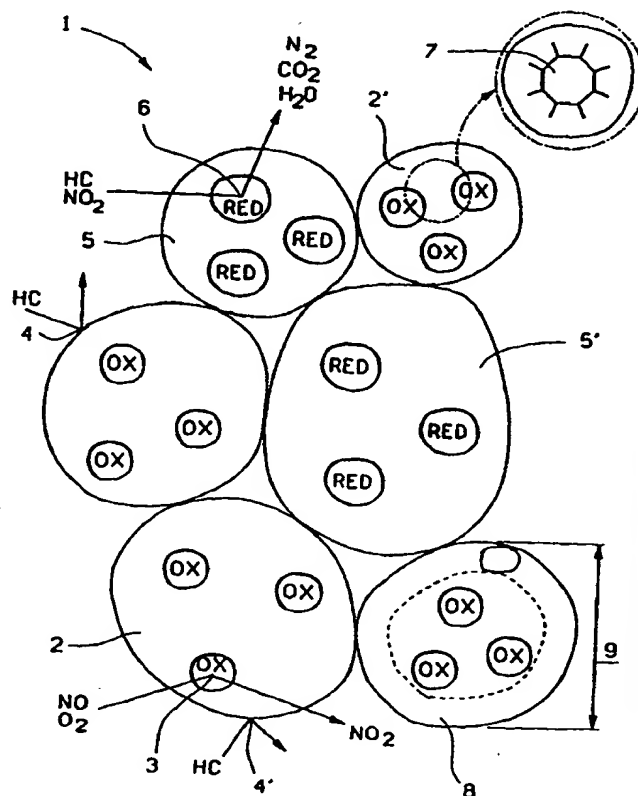
Published

With international search report.

(54) Title: POROUS MATERIAL, METHOD AND ARRANGEMENT FOR CATALYTIC CONVERSION OF EXHAUST GASES

## (57) Abstract

The invention pertains to a porous material for catalytic conversion of exhaust gases, comprising an oxidation catalyst able to catalyse oxidation of nitrogen monoxide into nitrogen dioxide and to catalyse oxidation of a reducing agent. According to the invention, the oxidation of the reducing agent is prevented since the reducing agent is sterically prevented from coming into contact with the oxidation catalyst. Preferably, the porous material also comprises a carrier with a reduction catalyst having the ability to selectively catalyse reduction of nitrogen dioxide into nitrogen, whereby the reducing agent is at least partially consumed. The invention also relates to a method and an arrangement which utilize the porous material, and an advantageous use of the porous material. The invention may be applied within the field of catalytic conversion of exhaust gases, originating from internal combustion engines, particularly Lean Combustion engines and diesel engines.



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 97/02067

## A. CLASSIFICATION OF SUBJECT MATTER

IPC6: B01D 53/94, F01N 3/28

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: B01D, F01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 9749480 A1 (IVANOV A A ET AL), 31 December 1997 (31.12.97), abstract --	1
A	EP 0682975 A1 (KABUSHIKI KAISHA RIKEN), 22 November 1995 (22.11.95), claim 1, abstract --	1
A	US 3901821 A (WILLIAM B. RETALLICK), 26 August 1975 (26.08.75), abstract --	1
A	EP 0445408 A1 (BAYER AG ET AL), 11 Sept 1991 (11.09.91), claim 1 --	1

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

14 July 1998

Date of mailing of the international search report

22-07-1998

Name and mailing address of the ISA/

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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 97/02067

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0499931 A1 (BAYER AG ET AL), 26 August 1992 (26.08.92), claim 1 --	1
A	US 5465574 A (THOMAS T. MA), 14 November 1995 (14.11.95), abstract -- -----	1



## INTERNATIONAL SEARCH REPORT

Information on patent family members

30/06/98

International application No.

PCT/SE 97/02067

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
WO	9749480	A1	31/12/97	NONE		
EP	0682975	A1	22/11/95	JP	2631814 B	16/07/97
				JP	7284664 A	31/10/95
				JP	8000999 A	09/01/96
				JP	8052326 A	27/02/96
				JP	8052327 A	27/02/96
				JP	8057264 A	05/03/96
				JP	8057265 A	05/03/96
US	3901821	A	26/08/75	CA	1033345 A	20/06/78
				DE	2510775 A	25/09/75
				JP	1115906 C	29/09/82
				JP	50125983 A	03/10/75
				JP	57010774 B	27/02/82
EP	0445408	A1	11/09/91	DE	4003515 A	08/08/91
				DE	59007453 D	00/00/00
				ES	2060917 T	01/12/94
				JP	4215821 A	06/08/92
				US	5085840 A	04/02/92
EP	0499931	A1	26/08/92	DE	4105534 A,C	27/08/92
				DE	59202574 D	00/00/00
				ES	2075490 T	01/10/95
				JP	5115752 A	14/05/93
US	5465574	A	14/11/95	CA	2120759 A	15/04/93
				DE	69206154 D,T	18/04/96
				EP	0607242 A,B	27/07/94
				SE	0607242 T3	
				ES	2079894 T	16/01/96
				GB	2260279 A	14/04/93
				JP	6511530 T	22/12/94
				WO	9307365 A	15/04/93